OXYGENATED AIR FRESHENER

BACKGROUND OF THE INVENTION

This application bases its priority on U.S. Provisional application Serial No. 60/402,758 filed on August 12, 2002.

The present invention relates to the field of air fresheners. More particularly, the present invention relates to the field of oxygenated air fresheners.

Due to urbanization, oxygen-producing plants are being destroyed and oxygen-decreasing environmental contamination is increasing. This oxygen deficiency can lead to reduced immune activity and decreases the regenerative capabilities of the human body.

Oxygen is used by humans to perform a variety of functions. Oxygen is used to metabolize food, breaking down glucose into carbon dioxide, water, and energy through the process of respiration. The tiredness many people feel after eating is a result of oxygen being drawn away by the digestive system. Oxygen also stimulates the growth and efficiency of friendly bacteria the body needs for good health.

The average human breathes in roughly 35 pounds of air each day. If the air is dirty, the lungs are unable to absorb the amount of oxygen needed. Air pollution has a greater effect on children, the elderly, and people with allergies. An inadequate supply of oxygen is called "hypoxic" and may cause symptoms such as lack of energy, shortness of breath, reduced mental clarity, a suppressed immune system, and joint and muscle aches and pains.

A lack of oxygen has been shown by scientific research to have a negative effect on working efficiency and mental concentration, leading to increased workplace and automobile accidents. It was also observed in studies that oxygen deficiency contributes to a variety of circulatory diseases by increasing the cholesterol level and has harmful consequences for pregnant women and smokers. Nearly all known pathogenic bacteria and viruses are unable to survive in an oxygen rich environment, and our immune systems are known to run on oxygen. Decreases in the oxygen content of our environment may, therefore, lead to suppressed immune systems.

The composition of dry air is about 78% nitrogen, 21% oxygen, and 1% other gases. Pollution and lack of vegetation serves to reduce the oxygen content of the air we breathe. In some major cities, oxygen content can be as low as about 9%. It would therefore be desirable to develop a product capable of oxygenating an enclosed environment, such as a vehicle passenger compartment, for example, to provide healthier air for the occupants of that environment, resulting in increased energy and better well being.

SUMMARY OF THE INVENTION

An oxygenating air freshener is provided. The air freshener includes ambient air and a liquid component including at least water, a propellant, and a fragrance.

In another embodiment, an aerosol container including an oxygenating air freshener composition is provided. The container includes a canister constructed from a thin wall of metallic material having a diameter, an upper end, a lower end, and an intermediate exterior surface therebetween. The canister also includes a lower base

coupled to the lower end of the canister and a dispensing mechanism. The oxygenating air freshener composition includes ambient air, a propellant, and at least one fragrance.

In a third embodiment, an oxygenating air freshener composition is provided. The composition includes about 40% ambient air and a liquid component. The liquid component includes between about 50 and 90 wt% water, between about 0.1 and 5 wt% fragrance, between about 0.1 and 2 wt% sodium nitrite, between about 0.5 and 5 wt% triethylene glycol, and between about 5 and 50 wt% propellant.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is an aerosol can representative of the type of canister utilized in the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is directed to an oxygenating air freshener suitable for oxygenating an oxygen deficient environment. The oxygenating is achieved through the use of a canister of compressed air and air fresheners, which is dispensed into the subject oxygen deficient environment. A directional cone is secured adjacent the dispensing end of the canister to enable a more accurate dispensation of the air freshener. The various components of the present invention, as well as the manner in which they relate will be described in greater detail hereinafter.

A preferably cylindrical canister 22 of the present invention is constructed from a thin wall 20 of a metallic material. Additionally, the canister 22 is defined in part by the following elements: a diameter; an interior 24, an upper end 26; a lower end 28; and an

intermediate exterior surface therebetween. A lower base 32 is coupled to the lower end 28 of the canister 22. This base 32 may have a diameter, which is larger than the diameter of the canister 22 to provide stability to the canister 22 when standing vertically.

The dispensing mechanism associated with the present invention will next be described. A stem having a lower end and an upper end, is secured within the upper end 26 of the canister 22 and serves to interconnect the interior 24 and exterior of the canister 22. A lever 44 is employed in permitting the egress of the air freshener through the stem 34 of the dispensing mechanism. This lever 44 is secured below a nozzle 46 useful for expelling the air freshener from the canister 22. Alternatively a depressible button may be used above the nozzle 46 rather than the lever 44.

In a preferred embodiment, the canister 22 is filled with a combination of liquid and air under pressure. The pressurized liquid includes at least water and a fragrance. Other components of the liquid may include one or more of solvents, anticorrosive agents, propellants, surfactants, and mixtures thereof. The water is preferably distilled, more preferably deionized. In an alternate embodiment, the water may be oxygenated to provide greater oxygen content within the canister. Suitable fragrances include fragrances known in the art as suitable for air fresheners. When utilized, suitable solvents can include lower alcohols, such as ethanol, isopropanol, and mixtures thereof; mineral spirits; and mixtures thereof. Suitable propellants include hydrocarbon propellants known in the art. By regulating the amount of propellant added to the pressurized mixture, a desired amount of metered spray releases may be attained. It

may also be preferred to include an anticorrosive component, such as sodium nitrite or triethylene glycol to prevent in-can corrosion.

In one embodiment, the pressurized liquid portion of the filled canister 22 includes between about 50 and 90 wt% water, between about 0.5 and 5 wt% triethylene glycol (to prevent in can corrosion), between about 0.1 and 2 wt% sodium nitrite (to prevent in can corrosion), between about 0.1 and 10 wt% surfactant, between about 0.2 and 50 wt% solvent, between about 0.1 and 5 wt% fragance, and between about 5 and 50 wt% propellant. In a preferred embodiment, the pressurized liquid portion of the filled canister 22 includes about 69.77 wt% water. Propellants are preferably present in a quantity of about 27.78 wt%. Fragrances preferably comprise about 0.17 wt%. The total liquid content of the canister 22 is preferably about 72.05 wt%.

The remaining volume in the canister 22 is preferably filled with pressurized air. The air may be purified. Thus, the gas under compression consists essentially of nitrogen and oxygen in proportion to the percentages of nitrogen and oxygen present in ambient air. The pressurized air thus contains approximately 78% nitrogen, and 21% oxygen, with about 1% of other gases present.

If the canister 22 includes roughly equal amounts of pressurized liquid and pressurized air by volume, then the pure oxygen content of the canister would be approximately 10.5% by volume. The oxygen content will, of course, vary depending on the ratio of pressurized liquid to pressurized air, according to the ratios described above. The canister preferably contains at least about 5% by volume oxygen, preferably greater than 10% by volume oxygen. The canister may contain as much as

about 25% by volume oxygen, taking into account the vaporized water in the liquid portion of the canister.

As to the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating the manner of usage and operation will be provided.

EXAMPLES

Example 1:

A canister is filled with pressurized air and pressurized liquid in a ratio of about 1:1. The liquid portion includes the components found in Table 1. The density of the liquid component is approximately 0.82 g/mL. The air component comprises purified ambient air.

Component	WPG	Weight %	Volume %
Deionized water	8.33	69.77	57.485
Triethylene glycol	9.34	1.72	1.268
Sodium nitrite powdered	18.08	0.19	0.072
SPAN 85	7.91	0.05	0.043
ARLACEL C	8.33	0.04	0.033
Triethylene glycol	9.34	0.01	0.001
SDA 40 2 ethanol	6.55	0.27	0.281
Country garden 167-694	8.47	0.17	0.137
NP70 Hydrocarbon blend	4.68	27.78	40.68

(WPG=weight per gallon)

With the exception of SPAN 85 surfactant (sorbitan trioleate), ARLACEL C (sorbitan sesquioleate), and Country Garden fragrance, all components are available through

Aldrich, Milwaukee, WI. SPAN 85 and ARLACEL C were provided by ICI, (Wilmington, DE), and Country Garden was provided by Alpine Aromatics International, (W. Piscataway, NJ).

The canister filled according to this example includes 10.57 vol.% $O_{2\,(g)}$, 39.78 vol.% $N_{2(g)}$, 20.20 vol.% propellant, and 29.45 vol%. of other liquids.

It should also be appreciated that the oxygen content of the canister can be increased by employing oxygenated water instead of the deionized water in the ingredients listed above.

With respect to the above description, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function, and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompasses by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described. Accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

The invention will now be described with reference to specific examples. These examples are intended to be illustrative only and are not to be construed in any limiting sense.